

# Solubility of IFN-Beta-1b in Sodium Chloride Solutions

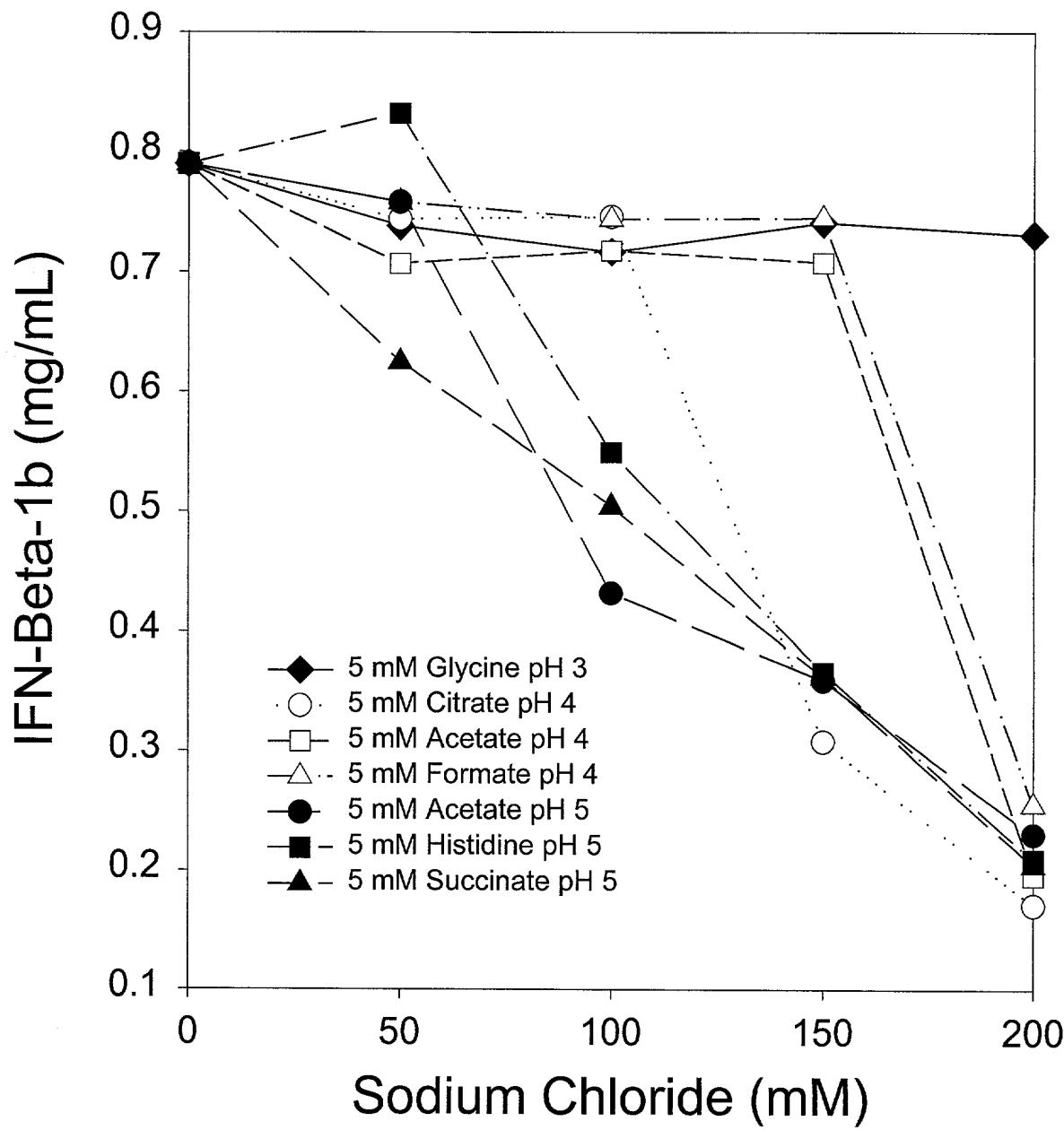


Figure 1

# IFN-Beta-1b Solubility in Low-Ionic-Strength Formulations

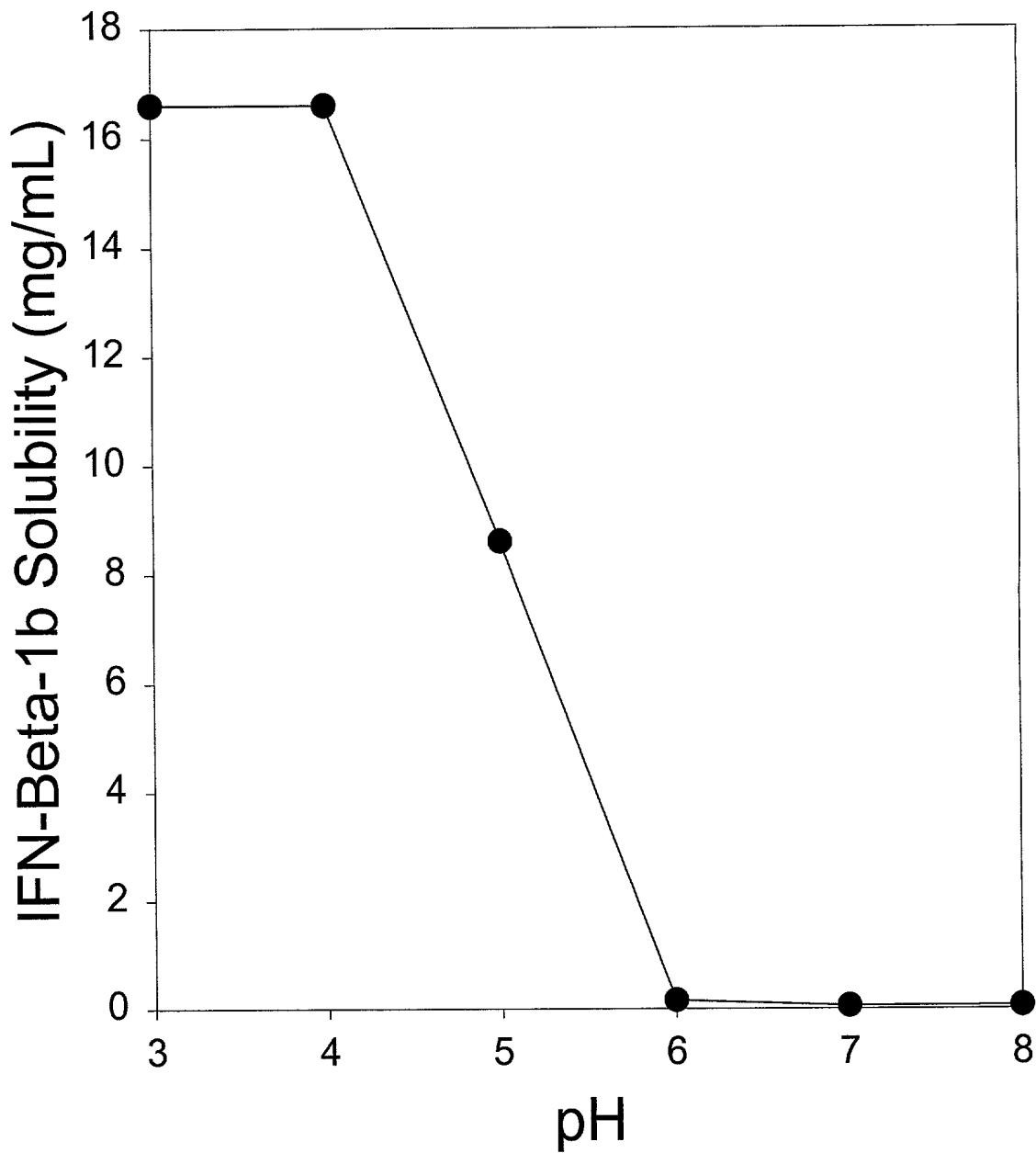


Figure 2

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

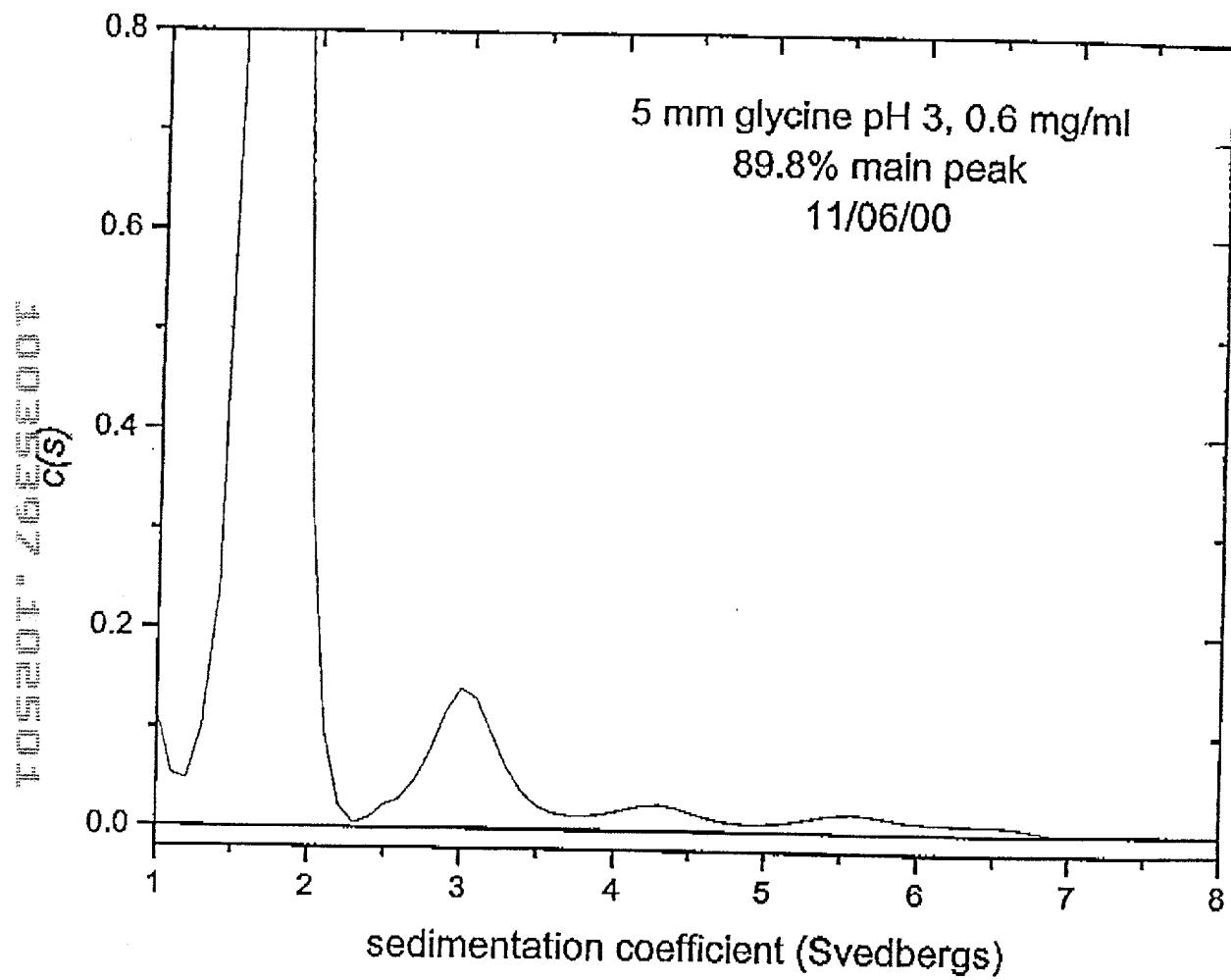


Figure 3

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

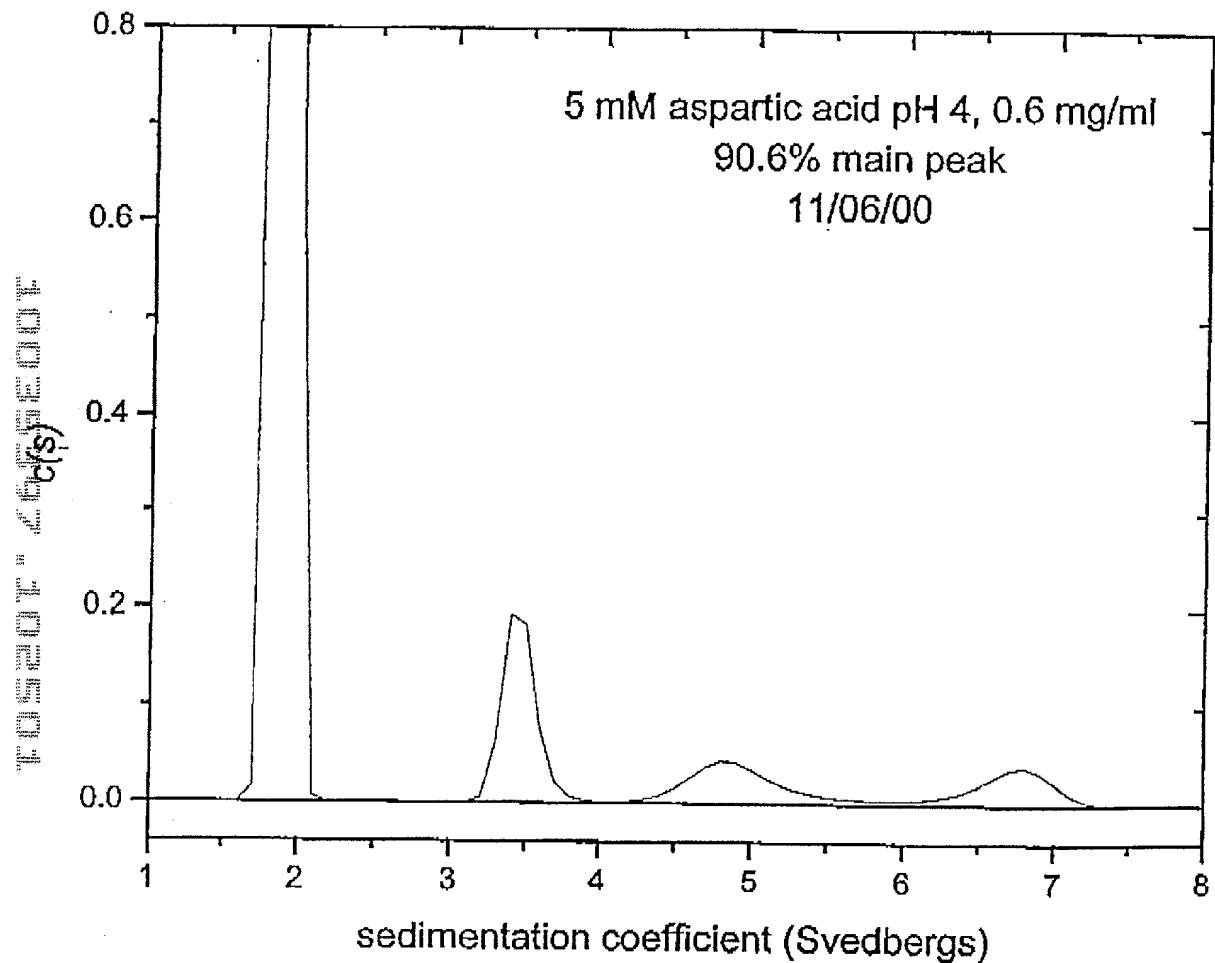


Figure 4

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

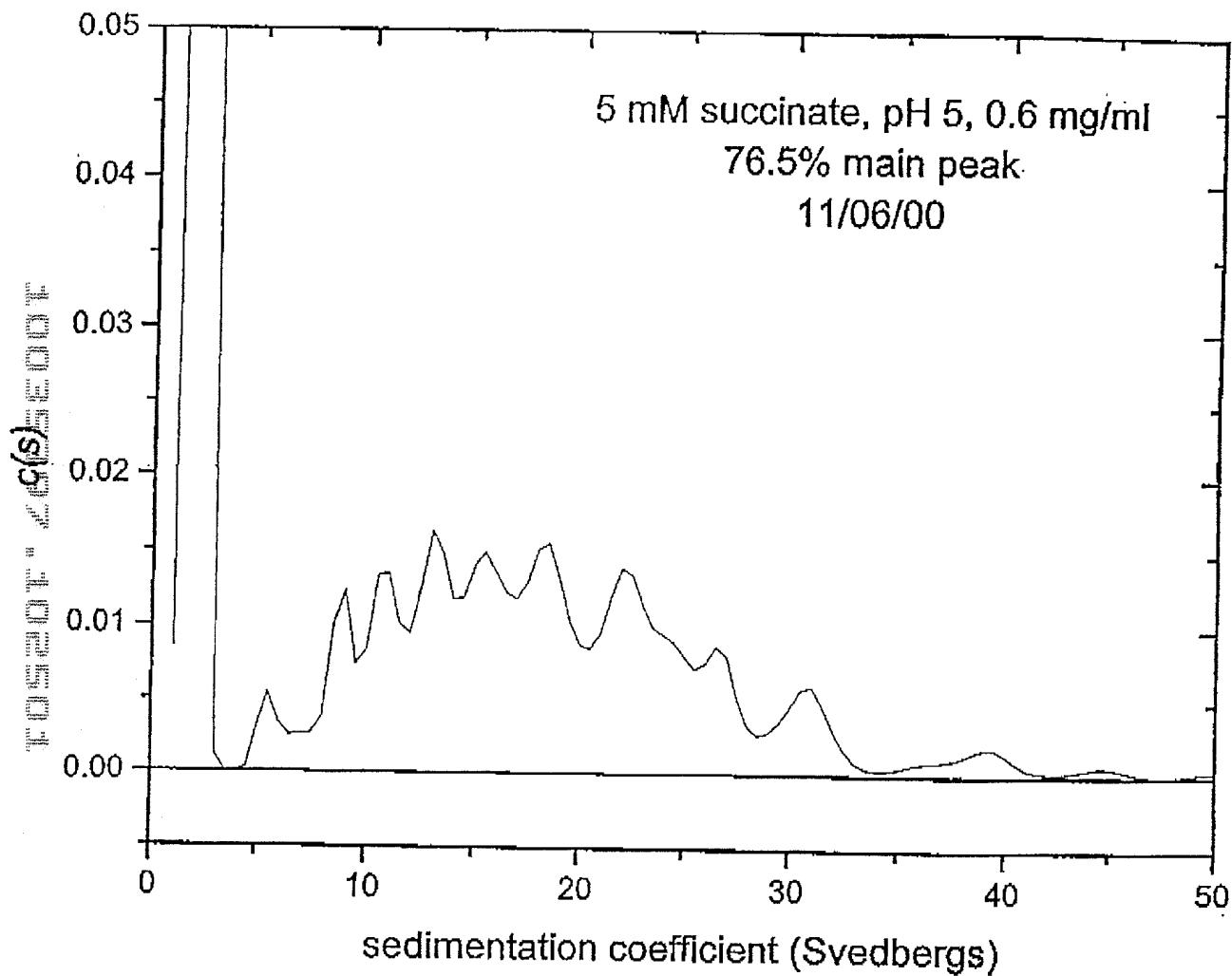


Figure 5

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

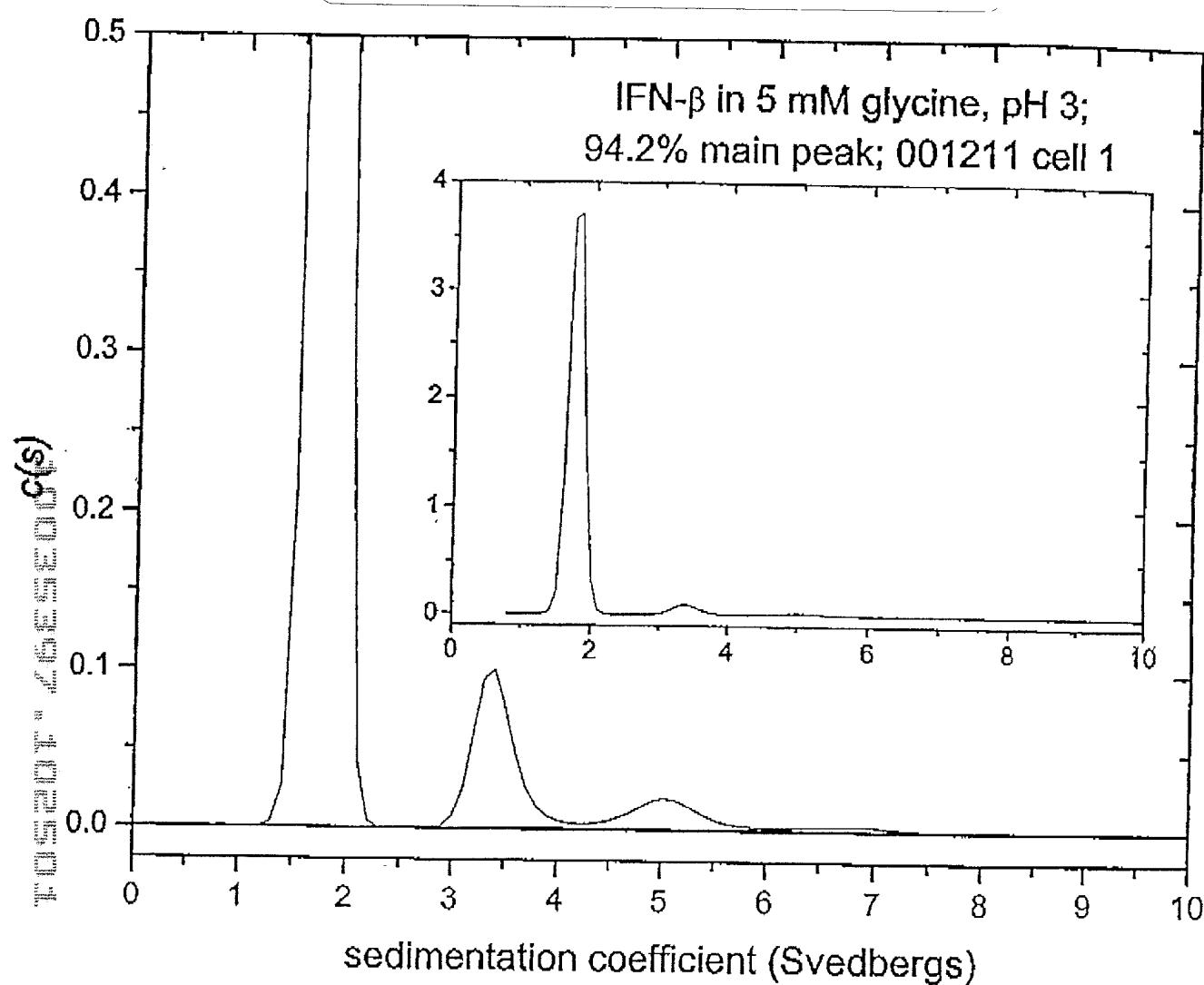


Figure 6

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

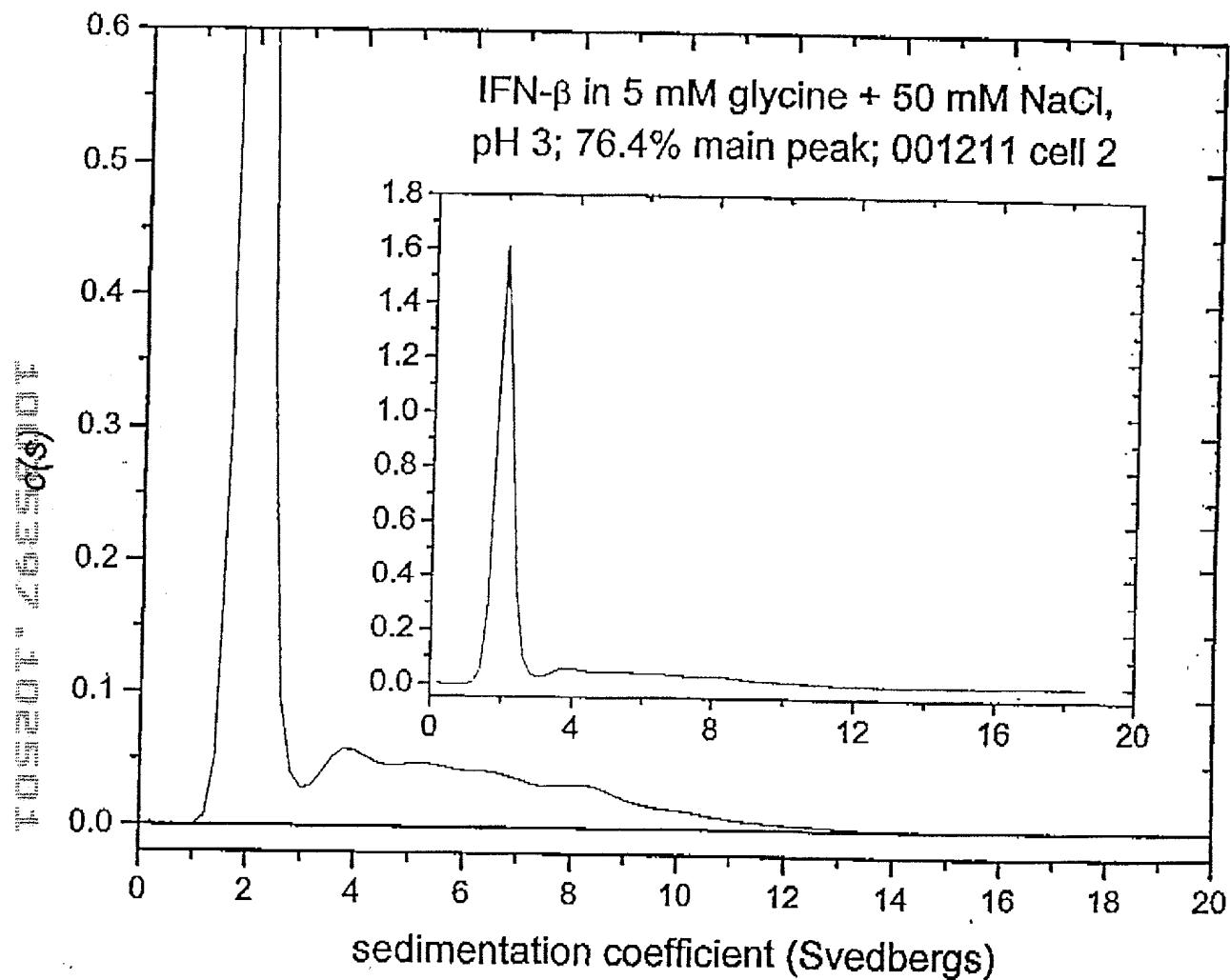


Figure 7

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

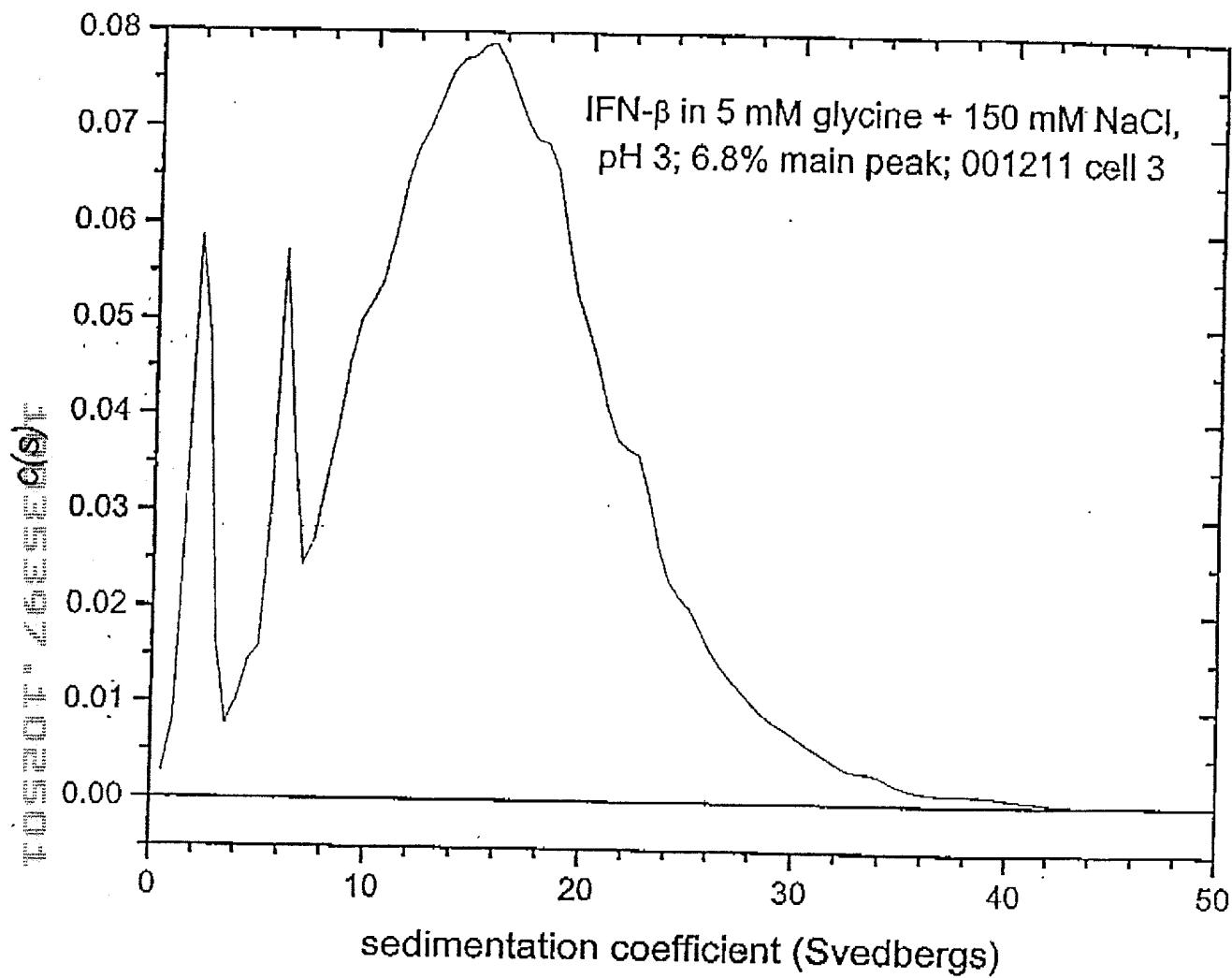


Figure 8

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

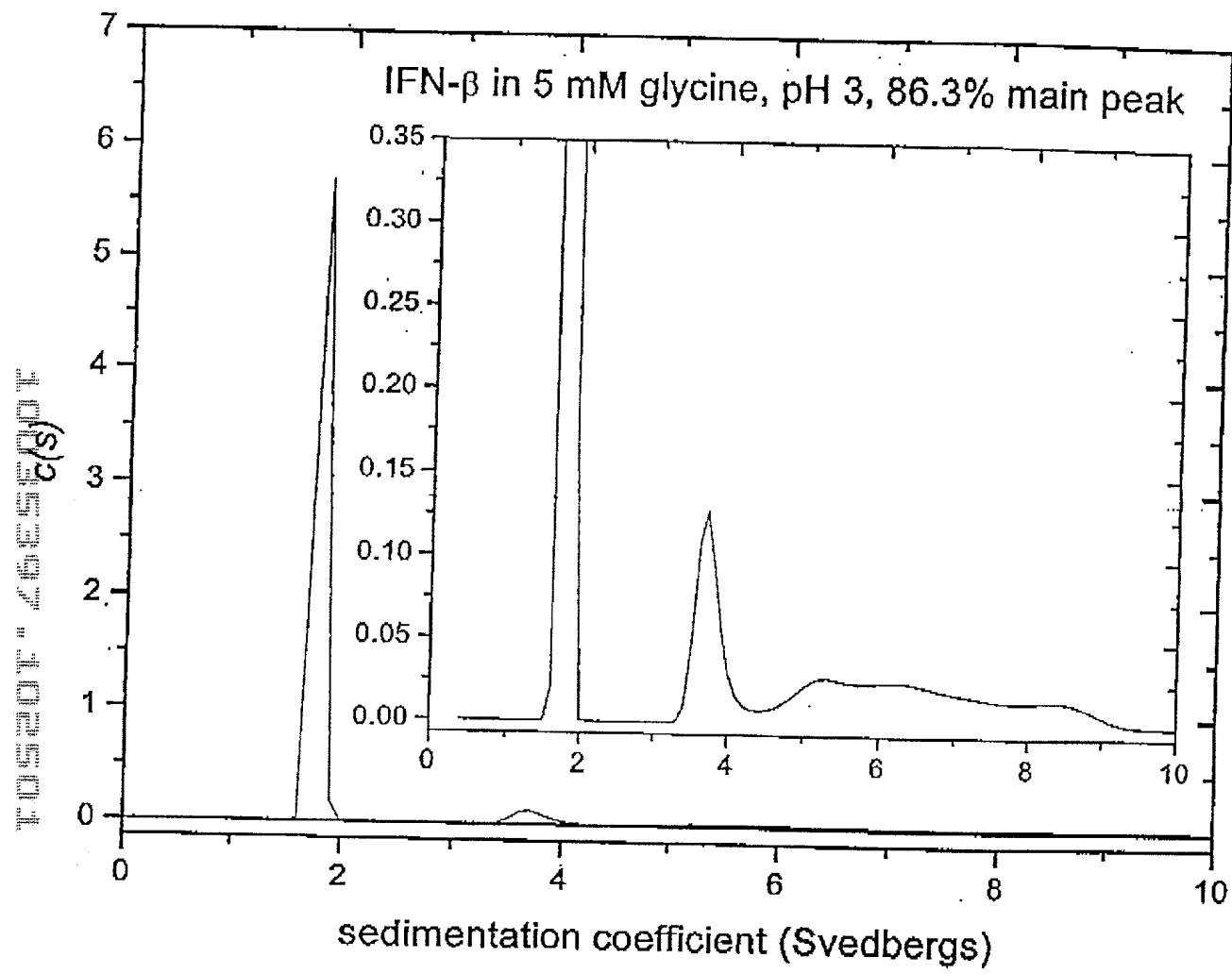


Figure 9

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Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

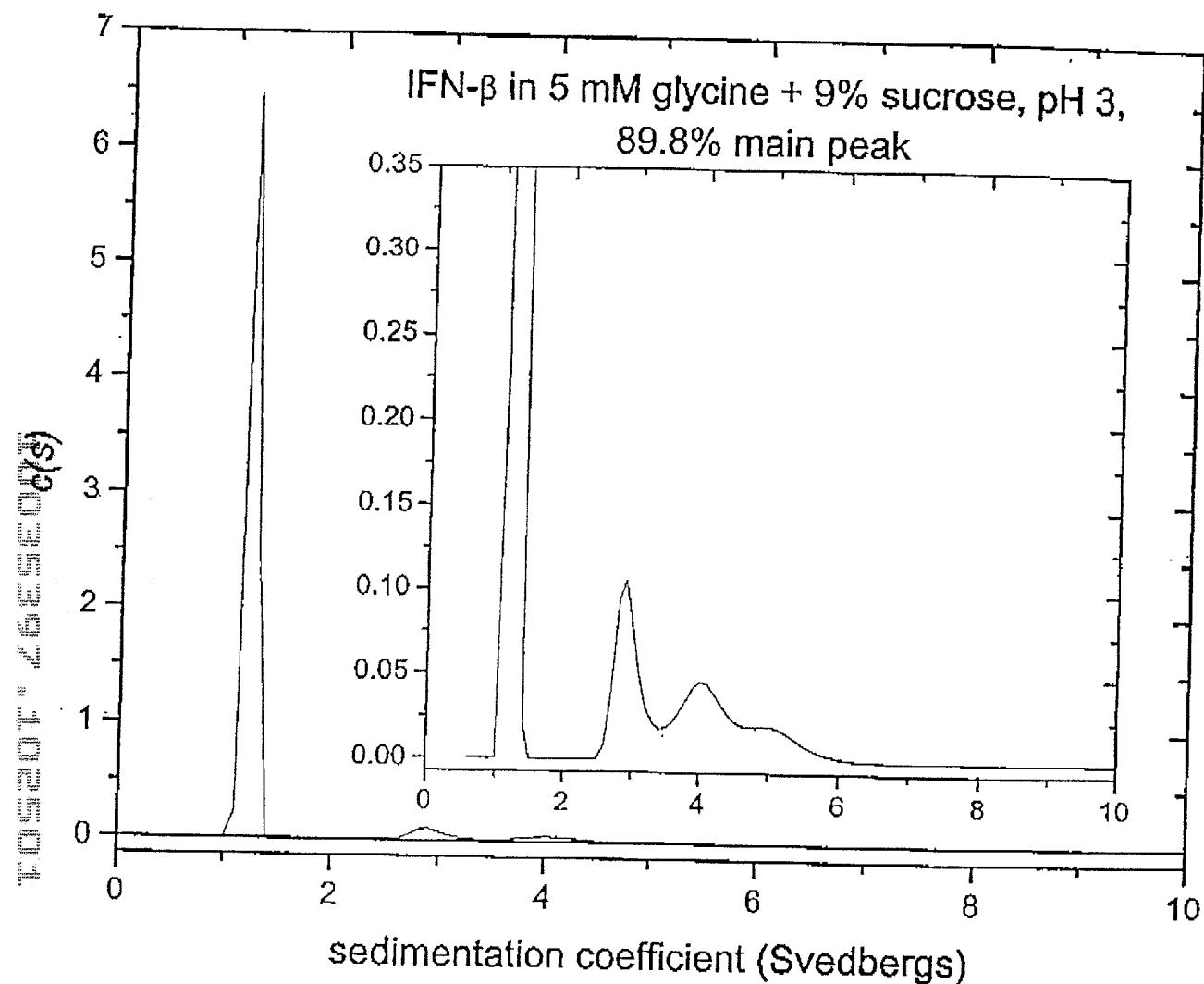


Figure 10

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

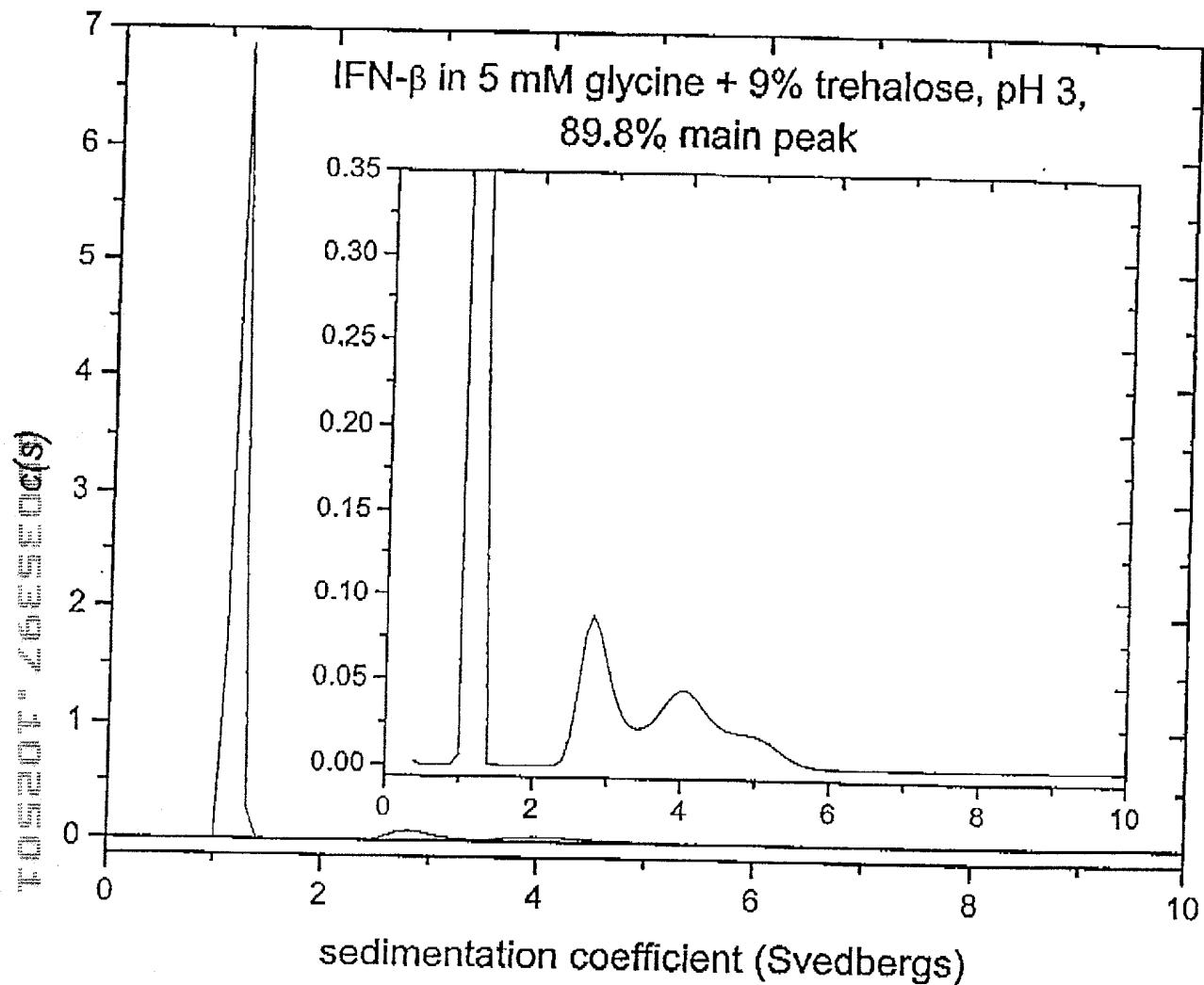


Figure 11

# IFN-Beta-1b Lyophilized Formulations % of Initial Concentration UV Absorption 40°C

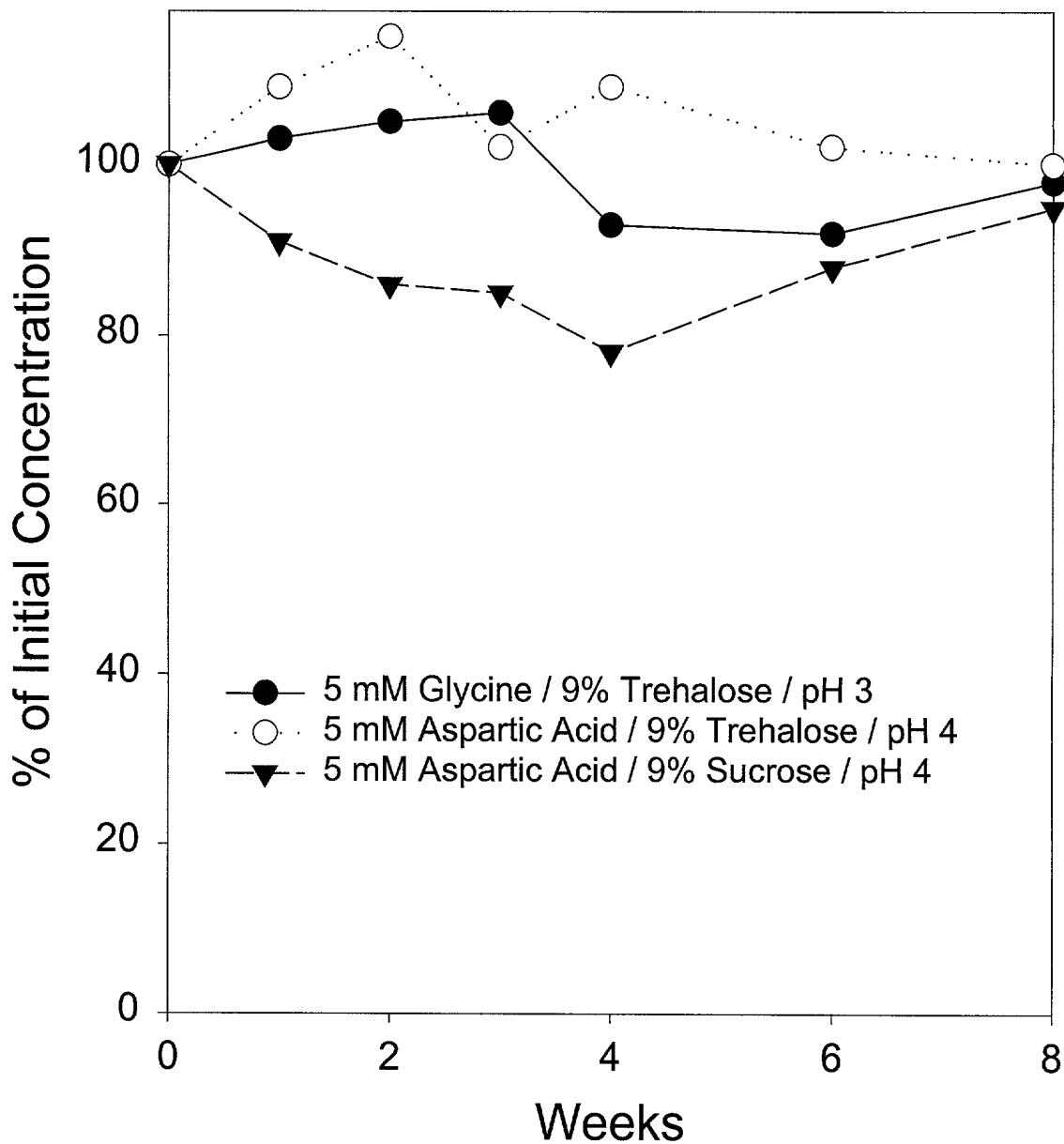


Figure 12

IFN-Beta-1b  
Lyophilized Formulations  
% Main Peak  
RP-HPLC  
40°C

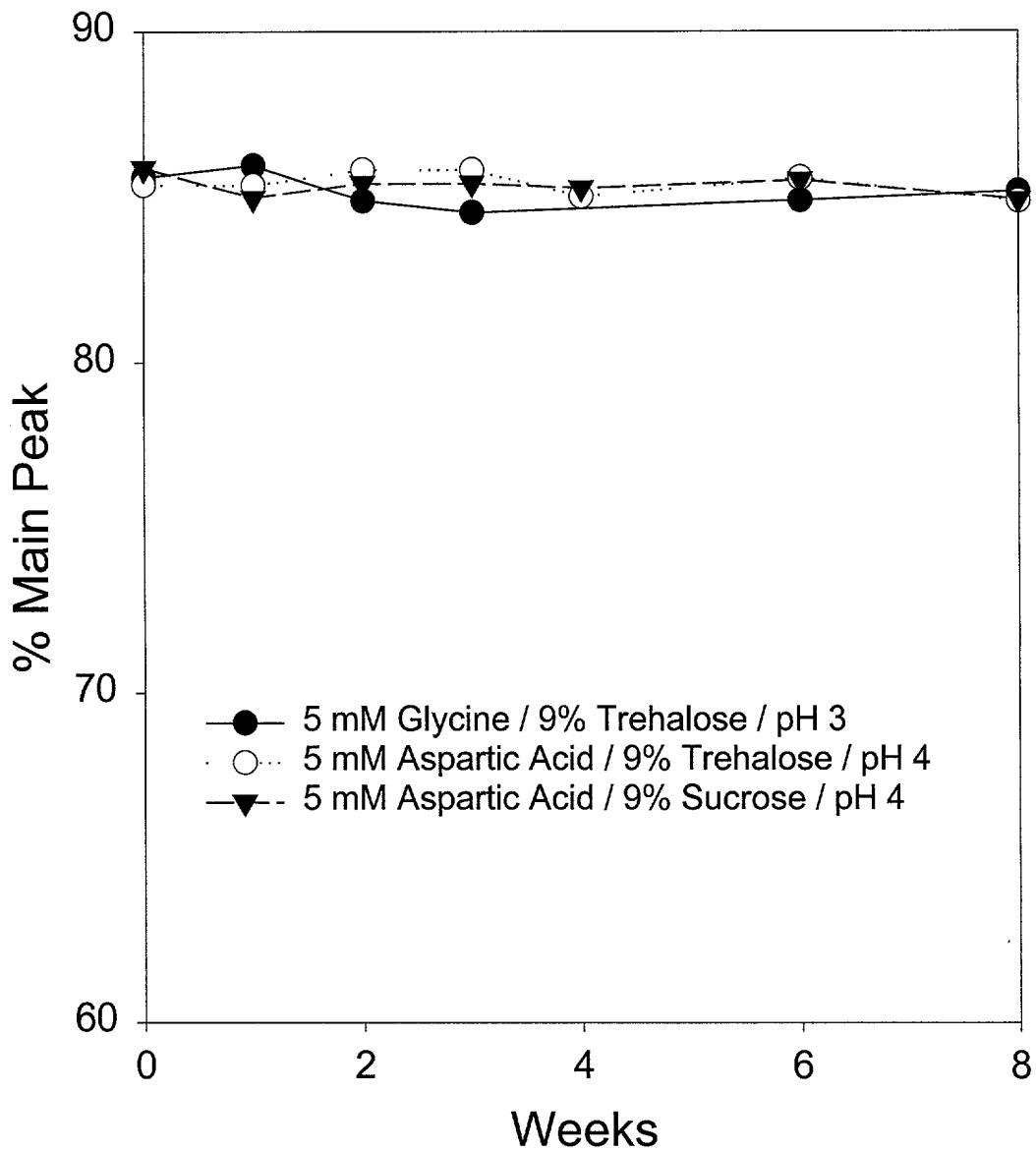


Figure 13

# IFN-Beta-1b Lyophilized Formulations pH 3 & pH 4 % of Initial Concentration UV Spectroscopy

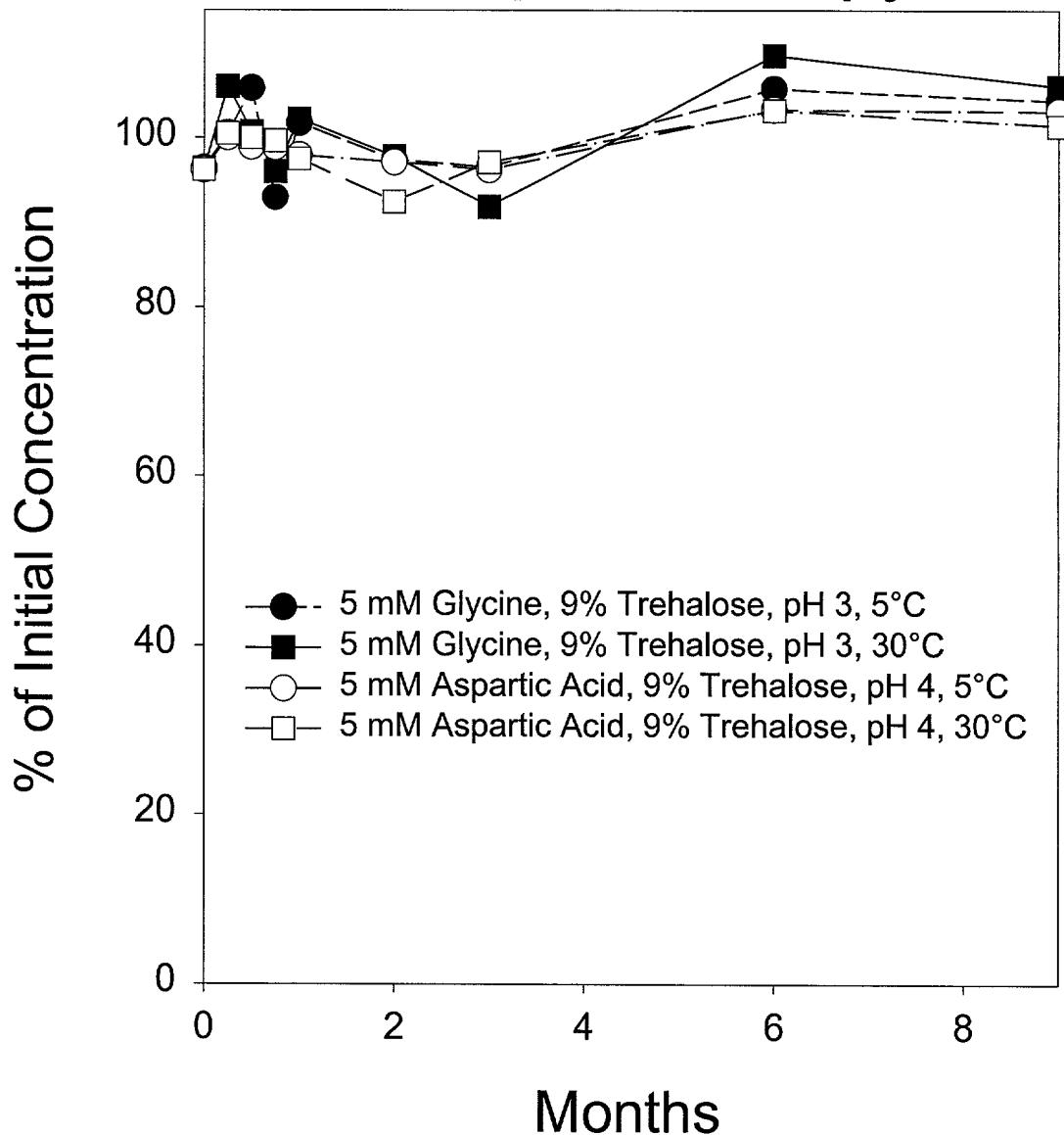


Figure 14

IFN-Beta-1b  
Lyophilized Formulations  
pH 3 & pH 4  
% Main Peak  
RP-HPLC

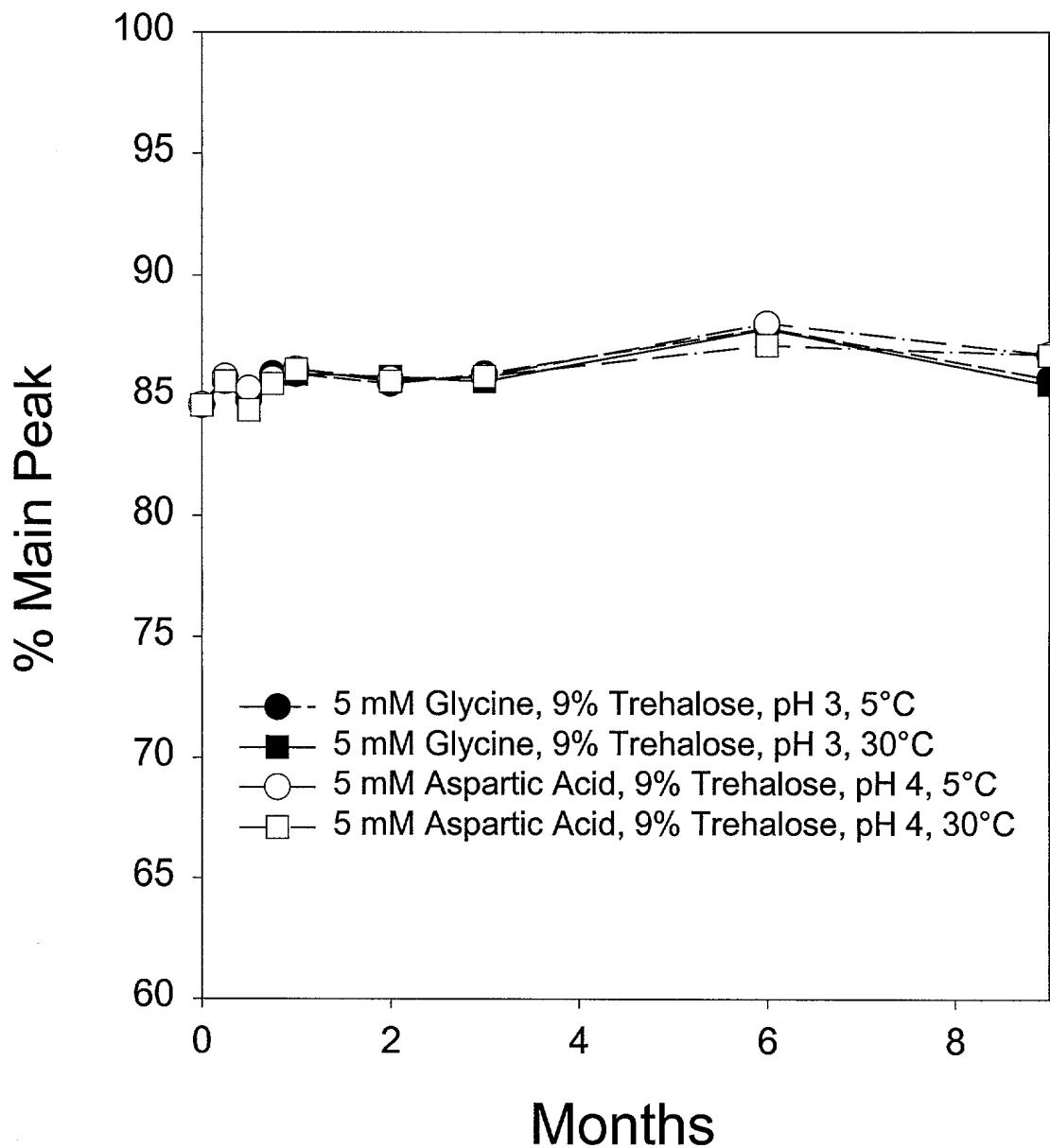


Figure 15

IFN-Beta-1b  
Liquid Formulations  
% of Initial Concentration  
UV Absorbance  
30°C

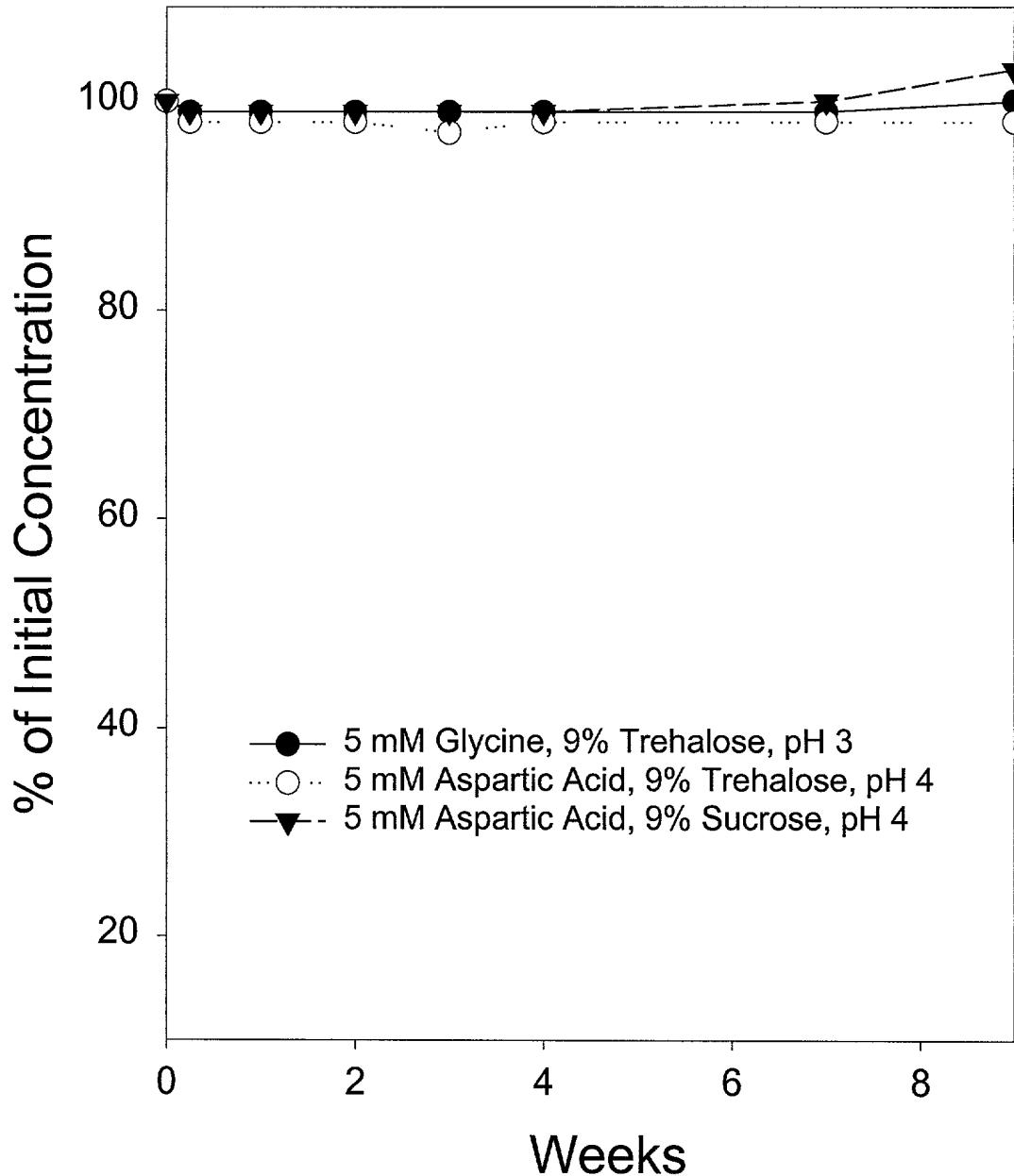


Figure 16

# IFN-Beta-1b Liquid Formulations % Main Peak RP-HPLC 30°C

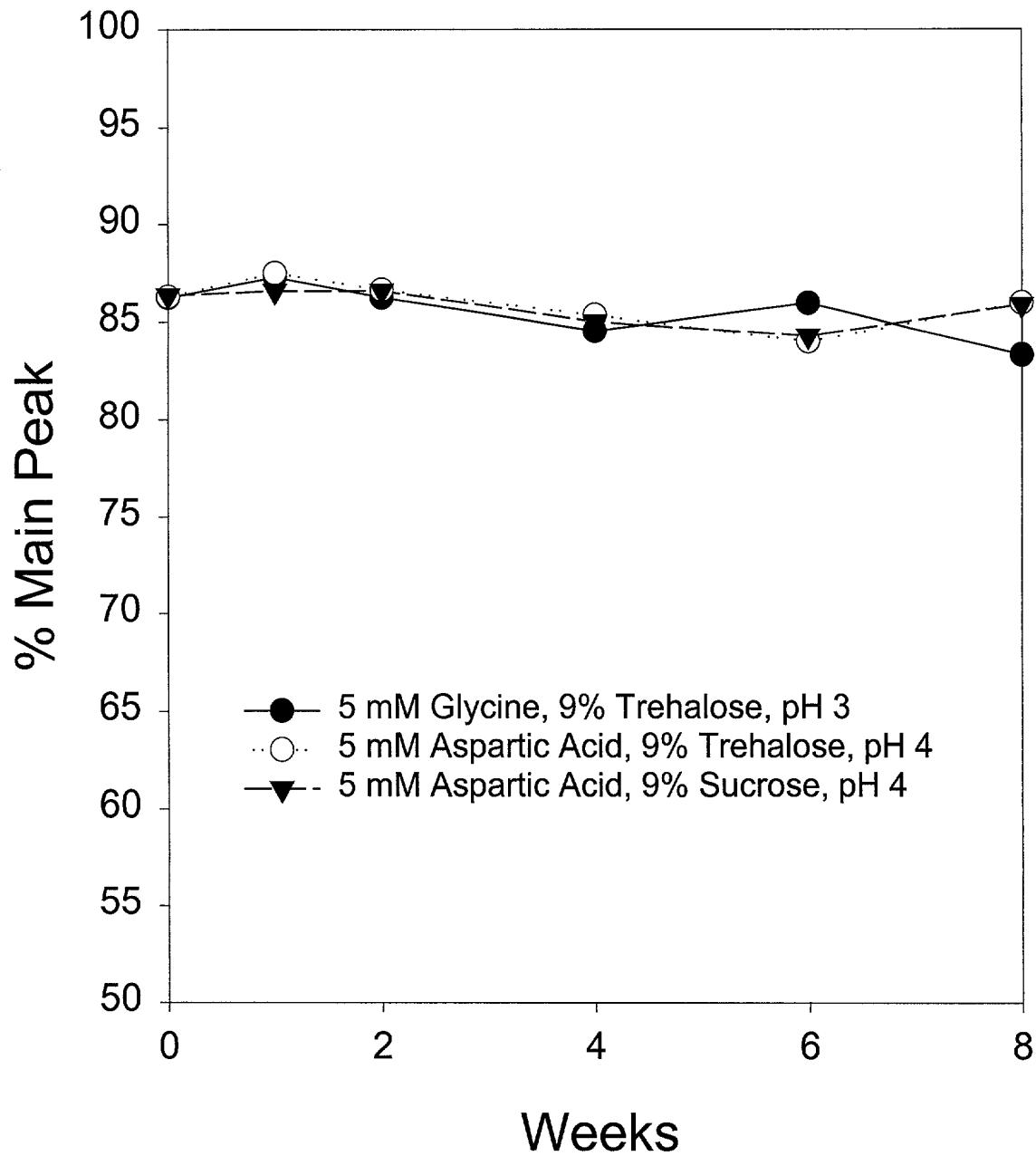


Figure 17

IFN-Beta-1b  
Liquid Formulations in Vials  
% of Initial Concentration  
UV Spectroscopy  
5°C

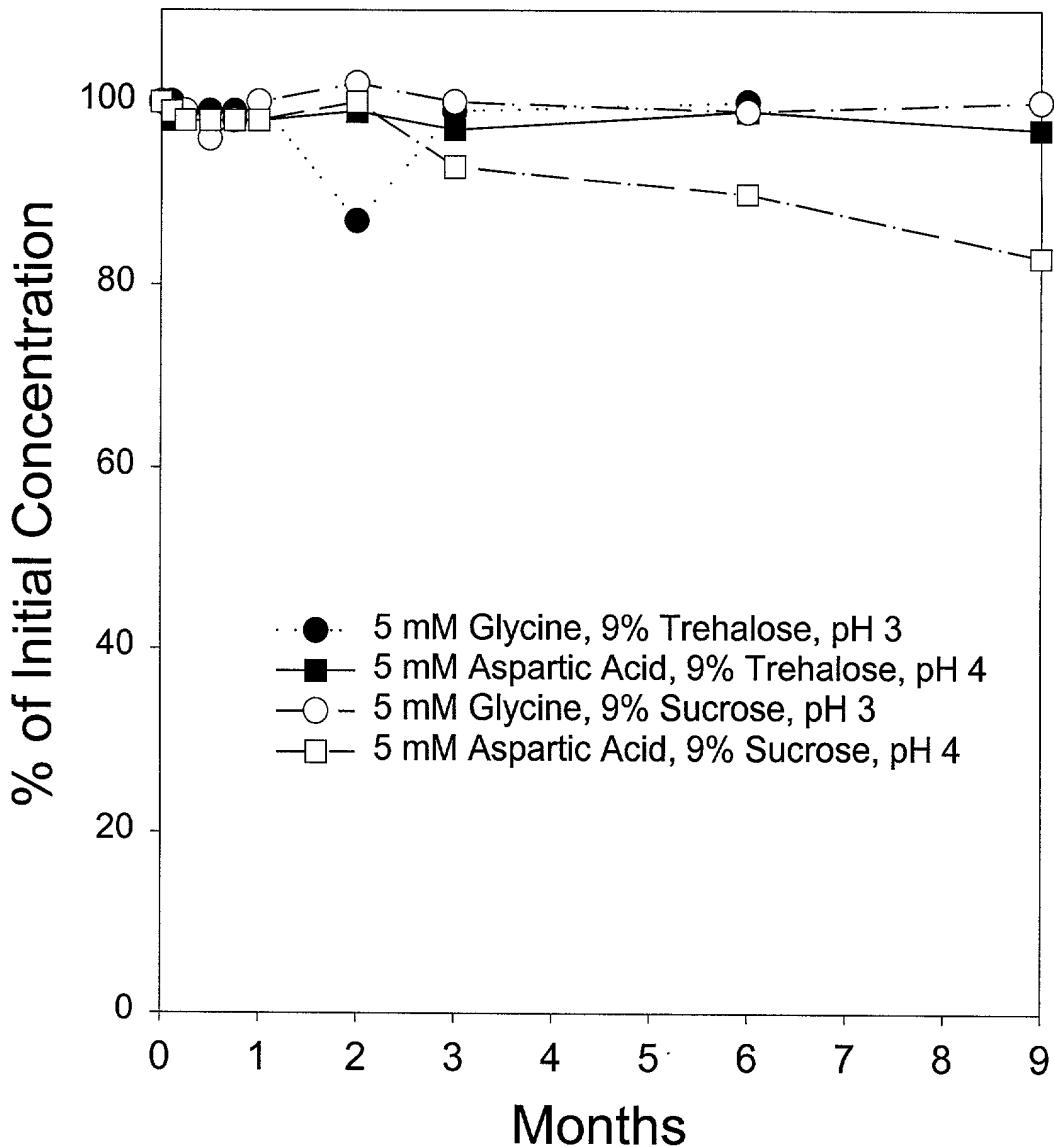


Figure 18

IFN-Beta-1b  
Liquid Formulations in Vials  
% Main Peak  
RP-HPLC  
5°C

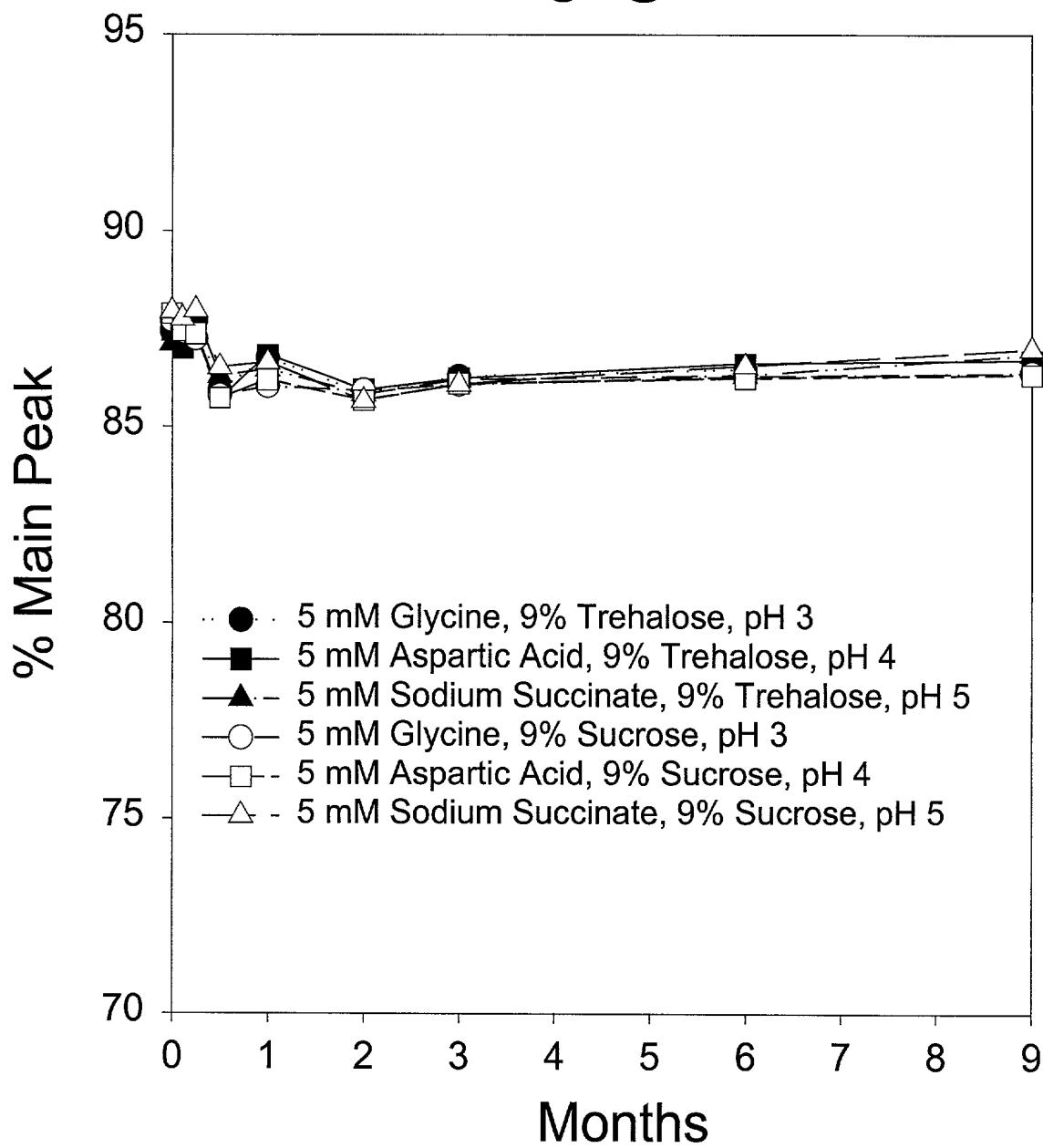


Figure 19

IFN-Beta-1b  
Liquid Formulations  
Containing Trehalose or Sucrose  
% of Initial Concentration  
UV Spectroscopy  
30°C

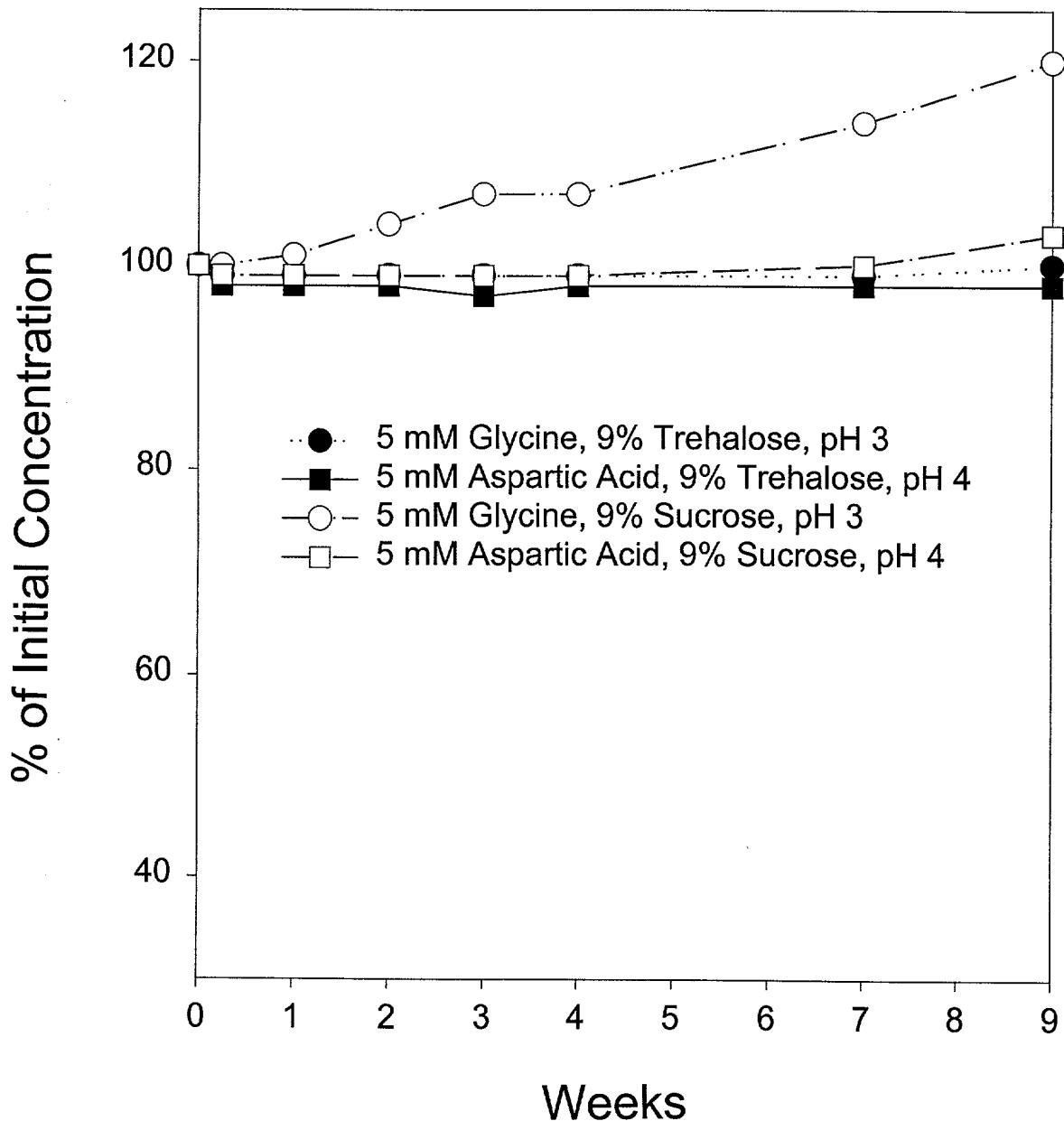


Figure 20

# IFN- $\beta$ -1b

## Lyophilized Formulations

### % of Initial Concentration

#### Containing Trehalose or Sucrose

#### pH 3 & 4

#### 40°C

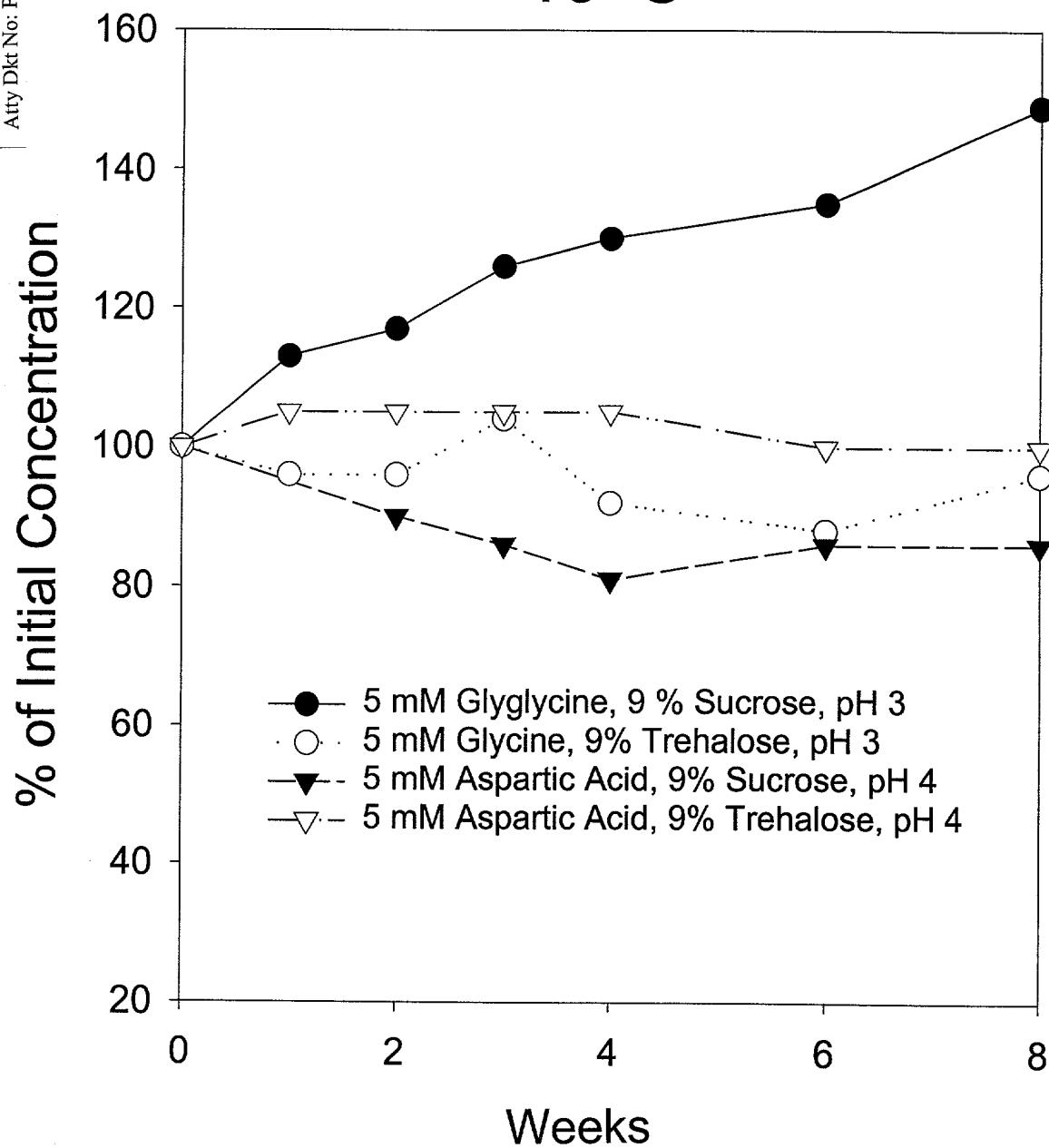


Figure 21

IFN-Beta-1b  
Liquid Formulations Containing Mannitol  
% of Initial Concentration  
UV Spectroscopy  
5°C

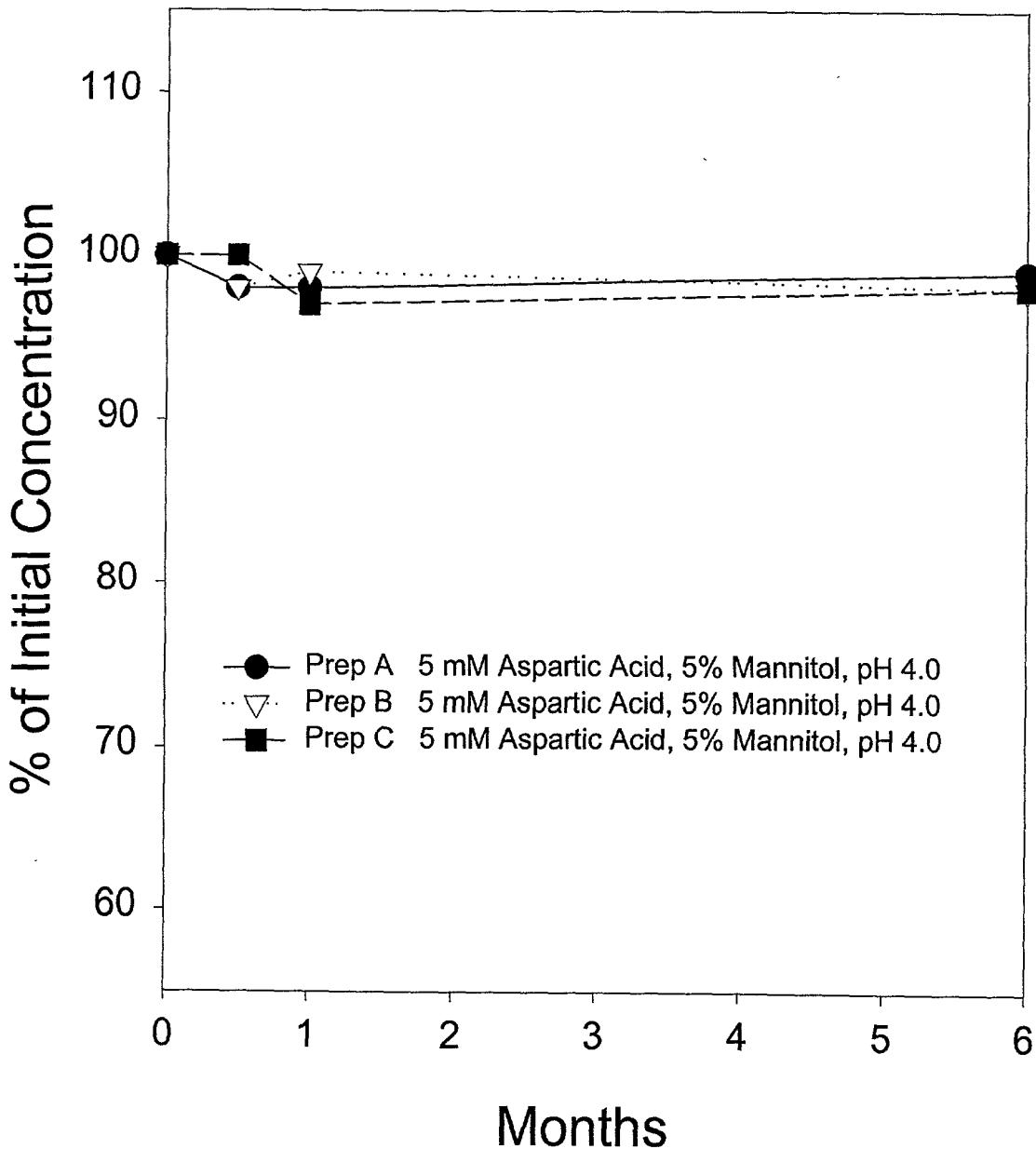


Figure 22

IFN-Beta-1b  
Liquid Formulations Containing Mannitol  
% Main Peak  
RP-HPLC  
5°C

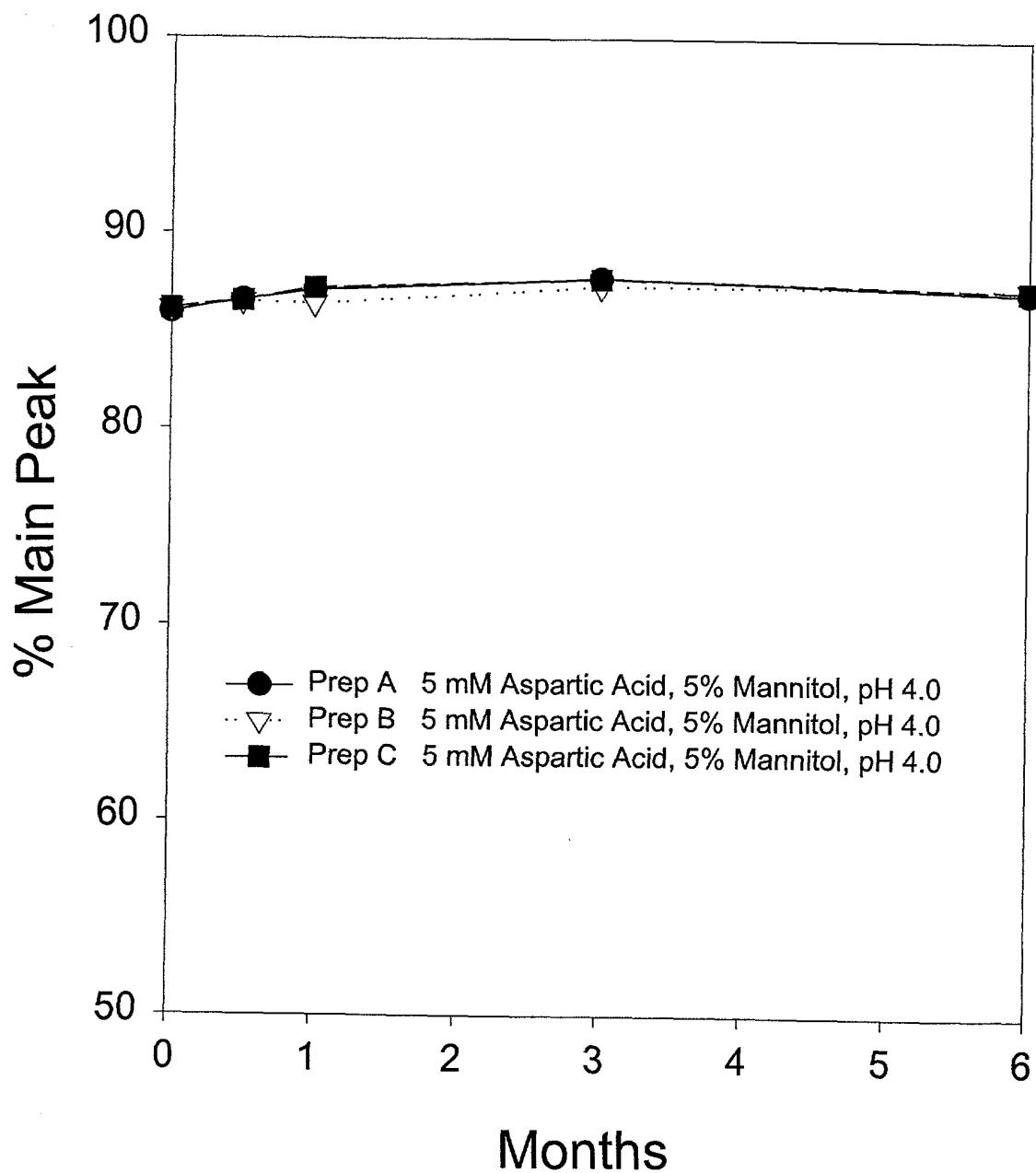


Figure 23